STUDENTS' READINESS AND PREFERENCE FACTORS AS DETERMINANTS OF USING E-ASSESSMENT MODE IN BUSINESS STUDIES IN RIVERS STATE, NIGERIA

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Abstract

The study investigated the students' readiness and preference factors as determinants of using e-learning assessment mode in Business Studies in Junior Secondary Schools in Port Harcourt; adopting a survey research type of non-experimental design. The population included all Junior Secondary School (JSS) students offering Business Studies in Port Harcourt, Rivers State. Simple random sampling technique was used to select ten (10) public senior secondary schools and 35 students from each school. In all, (350) students participated. Three instruments used were: Students' Readiness Questionnaire (SRQ) (r=0.84), Students' Preference Questionnaire (SPQ) (r=0.71) and the Students Study Habits Questionnaire (SSHQ) (r=0.68). The data was analysed using multiple regression at 0.05 level of significance. Age, gender, study habit and self-efficacy [$F_{(4, 345)} = 8.33$] significantly influenced the readiness of students in the use of e-assessment mode in business studies. Relationships exist between the independent variables and dependent variable R=0.30, Adjusted R^2=0.08; the independent variables explained 8% of the variability of the dependent variable. Three variables contributed significantly to students' readiness to the use of e-assessment mode: self-efficacy (β=0.19, t=3. 59), study habit (β=0.136, t=2.60) and gender (β=0.12, t=2.20) respectively. The multiple regression R=0.15 shows that the relationship between the predictor variables are moderate and positive. The adj. R Square (R2 adj.) = 0.02 shows that the independent variable accounted for 2% of variance in students' preference to the use of e-assessment mode. The overall model significantly predicts students' preference to the use of e-assessment mode in business studies in Junior Secondary Schools F(2, 347)= 3.866, p<0.05. Result indicated that only achievement in business studies (β=0.152; t=2.642; p<0.05) is a significant predictor of students' preference to the use of e-assessment mode in business studies in Junior Secondary Schools. E-assessment has the potential to support and even improve student learning, provided that the e-assessment tasks are properly designed. It was recommended that e-assessment should be made compulsory right from primary schools to all other levels of education.

Keywords: Students' Readiness, Preference Factors, E-Assessment Mode, Business Studies

Introduction

Business Studies is a discipline which is taught at the Junior Secondary Schools in Nigeria. It comprises the teaching or knowledge of shorthand, typewriting (key-boarding) and book-keeping. It is the study of the activities involved in running a business especially the financial and management aspects. The subject is geared towards helping students to develop the basic understanding of the Nigerian business system and its role in the economic society of the country. It provides students with the ability and skills to be gainfully employed upon completion of their programme as well as prepare them for setting up their business as entrepreneurs. The subject inculcates into students, at an early age, those worthwhile values as value orientation, employment generation and wealth creation that are required if an entrepreneur and workers in the business environments are to succeed. This is the basis for the incorporation of business studies programme in the educational system right from the Junior Secondary School for a gradual skill development and competency (Atakpa, 2011).

The general objectives of business studies as provided by the Business Studies Curriculum (2007, p iv) are to provide the orientation and basic skills with which to start an occupation for those who may not have opportunity for further training, provide basic skills for personal use now and in future, prepare students for further training in Business Studies, relate the knowledge and skills to the national economy, and develop basic skills in office occupations. The content area of keyboarding, shorthand and book-keeping when acquired ensures the acquisition of skills for productive work. It is in line with this that Gimba (1988) pointed out that business studies is a subject in education for vocational preparation in business skills. It is therefore seen as an occupational education for professional position as accountants, marketing personnel, general management and finance personnel, production and secretarial positions.

Business studies train students to be self-reliant and also self-employed. Based on this, students are introduced into the modern methods of learning business studies, with the use of computers. It is the training that gives an occupational identity to students, thereby preparing them for entry into and advancement in business jobs (Ogunmayi, 2008). Hence, the need for business studies as a means of skill development cannot be over-emphasised. But the issue of gender differences is important when looking at the performance of students in Business studies.

Gender has been regarded as an important affective factor that plays specific role and influences second language acquisition (Zoghi, Kazemi & Kalan 2013). The gender of students may be a factor to determine student's performance in business studies. The issue of gender differences in school, especially in subjects like Business Studies has implications for their future careers and has been a source of concern for educators everywhere the subject is offered. There are different views and reports to the comparative ability of male and female in human endeavours, especially in education. Wonu & Anackwe (2014) study revealed no significant difference in the mathematic achievement of male and female students. Josiah a&nd Etuk-Iren also found a non-significant relationship between gender and achievement of college students. Abiam & Odok (2006) in their research work found that there was no significant gender difference in the achievement of students in number; numeration statistics and algebraic process. In a similar vein, Josiah & EtukIren (2014) found a non-significant relationship between gender, age, mathematics anxiety and college students' achievement in algebra. Similarly, Godpower-Echie & Amadi (2013) study showed that there was a positive correlation between gender and students' achievement in chemistry. Females tend to perform better in areas of standardized science assessment that address the human application of science such as life science, (Ingels & Dalton, 2008). Contrary to the findings above, Babalola & Fayombo (2009), study showed that there was no statistically significant difference in the students' science achievement based on gender. Apart from gender, another variable that may affect the readiness and preference to the use of e-assessment is age of the learner.

Age is considered a factor that may affect the cognitive development and maturity of the learners. Age of the individual, as it increases, usually affects the various developmental changes in the learner. It also affects every area of human performance (Ukueze, 2007). Therefore, it has become necessary to examine the extent to which age affects the readiness of the students to accept *e-assessment mode in business studies in Junior Secondary Schools* as well as checking the preference level of the students. Ali (2013) reported that age was among other factors that significantly affected academic performance of graduate students. Age is likely to play a significant role in determining a learner's self-efficacy.

Self-efficacy is referred to as the belief that one is capable of performing given tasks in certain ways to attain certain goals (Ormrod, 2006). Bandura (2001) further affirms that self-efficacy is one's belief in one's ability to succeed in specific situation. Self-efficacy is regarded as a construct that deals with one's perception that he or she is capable of doing what is necessary to reach one's goal in terms of knowing what to do and being able to do it (Pajares & Schunk, 2001). Self-efficacy is the belief whether correct or incorrect that one has the power to produce that effect by completing given task or activity related to that competency. Self-efficacy shapes people's outcome expectations whether they expect their efforts to produce favourable outcomes or adverse ones. Jung and Sosik (2003) found out in their study that efficacious learners persisted in tasks despite being told that they did not succeed at their task but on the other hand if the learner does not feel efficacious, he will be more likely to discontinue the activity. It is therefore significant that the learners' resilience to adversity may help to develop effective study habit.

Uche (2014) describes study habit as the adopted way and manner a student plans his private readings, after classroom learning so as to attain mastery of the subject or given task. Uche further maintains that good study habits are good assets to learners because habits assist students to attain mastery in areas of specialization and consequent excellent academic achievement, while the opposite constitutes constraints to learning and achievement leading to failure. Ayodele (2006) posits that it has long been recognized that in the process of learning, the study habits of the student play an important role in their academic achievement or given task.

Over the years, Junior Secondary Certificate Examination (JSCE) is being conducted for students in Junior Secondary III classes by National Examination Council (NECO) in Nigeria. It is the basis for their achievement and placement into the senior school classes in Nigeria. This introduces the use of continuous assessment which replaces the one-short system of assessment. Business studies examinations are conducted in two phases, namely practical and theoretical components. The theory comprises multiple-choice questions in section 'A' and essay questions in section 'B'. The examination is conducted at the end of the three years of Junior Secondary School. The performance of the students in this examination in recent time is not encouraging. In 2007, 47.91% of 3890 candidates that registered for the examination obtained grades 'A' to 'C', while 43.68% got grades 'P' to 'F' and 8.41% of the candidates were absent from the examination. In 2008, 11.08% of 4989 students that registered for the examination earned grades 'A' to 'C', 82.22% got grades 'P' to 'F', while 6.70% of the students were absent from the examination. Similar trend in performance was observed from 2009 to 2011. Hence, the need for investigating the use of e-assessment in determining the performance of students at the BECE level.

Given the importance attached to business studies, performance of students has become a matter of concern because of the possibility that students will may not be self-employed and self-reliant when they leave school. They are also likely to be unable to study business-related subjects like Economics, Accounting, Marketing and Management at the tertiary level of education. It is the poor performance of students in Business studies in recent times that prompted the researchers to undertake this study.

Business Studies is broadly recognized as an effective pivot for development of professional or skilled manpower in all facets of commercial, industrial and managerial fields (Ahmed, 2015). Business Studies is a dynamic subject which concocts students for the challenges of the 21st century by acquainting them with the world of business (Emeasoba & Igwe, 2016). Amoor (2010) confirms that Business Studies plays a noteworthy role in economic development by providing knowledge and

skills to the students, thereby, empowering them to effectively impart knowledge into others, and be in a position to deal with sophisticated information communication technology systems. Thus, the advent of Business Studies in the school curriculum exposes students to skills and competencies which are essential to their day to day lives and the nation at large (Shizha & Kariwo, 2012). Considering the crucial role played by Business Studies in preparing the students to be active participants in economic development of a country, it is essential to undergo a study on whether the assessment strategies used by teachers at this level enhance the teaching and learning of Business Studies.

Many countries world over have restructured their secondary school curricular in the light of existing economic and social factors with a view to provide students with an education that will adequately prepare them for the world of work (Sithole, 2012). In recent years, many African governments have attempted to introduce Business Studies in their curricular in response to problems of youth unemployment. Countries like Ghana, Senegal, Botswana, Mozambique and Swaziland have incorporated basic business skills into the secondary school curriculum in an attempt to expose students to pre-employment skills (African Union, 2007).

Assessment is viewed as a key component in education. The Joint Information Systems Committee (JISC, 2006) portrays assessment to be significant according to the perception of students. Howarth (2015) defines e-assessment as a method that involves the use of any technological device to create, deliver, store and/or report students' assessment marks and feedback. Examples of devices that can be used to create and implement e-assessment tasks include laptops, desktop computers, smartphones, iPads, Android tablets, among others. Crisp (2011) postulated that with the advent of new technologies, students' abilities and skills can be tested through e-assessment.

It is believed that e-assessment tasks have the capability to encourage a deep learning approach and assess higher order thinking (Biggs & Tang, 2011). This is only possible if the teacher has the experience and training to create high quality questions or tasks that will not only require students to merely recall concepts but to apply, analyse, evaluate, and create. Thus, teachers should be able to provide tasks that enhance students' learning, and maintain high expectations.

There are many benefits that come with e-assessment, whether used for formative or summative purposes. In e-assessment, many students can be assessed within a given timeframe, especially if their answers are marked automatically. Other benefits include immediate student and teacher feedback; the ability to repeat and randomize ATs/tests; the consistency and fairness of computer-marked assessment; students' ability to complete assessments anywhere and at any time (time saving); and opportunities for students to take responsibility for their own learning (Chalmers & McAusland, 2002; Morris, 2008). Other literature also indicates that students can be enabled through e-assessment to identify and reflect on what they have been taught and have learned in the context of blended learning (which includes e-assessment as a component) thus improving the quality of the student learning experience (Naidu, 2006 and Dermo, 2009).

Despite the benefits, there are also some challenges that institutions, teachers, and students face in the context of e-assessment. According to Crisp (2011), the most significant challenge in an e-assessment system is security and some security measures could be put in place to secure e-assessments in high-stakes examinations. These may include individual passwords or encrypted smart cards, restriction to particular computers by specifying Internet protocol addresses; live remote monitoring

of students using webcams, keystroke biometrics, and fingerprint and facial recognition systems. Osuji (2012) and Craven (2009) reports show that other challenges include the cost of a computer or laptop; internet cost; power supply problems, and lack of sufficient technical infrastructure to support e-assessment. Measures such as high-speed internet infrastructure and cameras in assessment rooms are expensive.

The National Examinations Council (NECO) has the mandate to conduct examinations for students at both Senior and Junior Secondary levels and vocational institutions. In the context of NECO, the imperative to analyze the need for e-assessment is contained in the performance contracting targets for 2012-2013. This represents the first step in the redesign of instruction at the examination body - away from the predominant face-to-face model to the blended model and later to the pure e-learning model. Assessing e-learning readiness is a prerequisite to the design, development and implementation of a new instructional method. The NECO examines various school subjects on prospective candidates both for science, arts and commercial students. Business studies happen to be one of the commercial subjects that is being examined at the junior secondary school level.

It is therefore imperative to search for a more proactive method of assessing the learning of business studies to ascertain if the performance of students can improve. It is against this backdrop that this study was designed to investigate the students' readiness and preference to the use of e-learning assessment mode in Business studies and by extension find out the implication for the improvement of external examinations like the Basic Education Certificate Examination (BECE).

Aim and Objectives of the Study

The study is aimed at investigating students' readiness and preference factors as determinants of using e-learning assessment mode in Business Studies in Junior Secondary Schools in Port Harcourt. Specific objectives of the study are to investigate:

i. the composite contributions of students' readiness factors (gender, age, self-efficacy and study habit) to the use of e-assessment mode in business studies in Junior Secondary Schools in Rivers State.
ii. the relative contributions of students' readiness factors (gender, age, self-efficacy and study habit) to the use of e-assessment mode in business studies in Junior Secondary Schools in Rivers State.
iii. the composite contributions of students' preference (learning readiness and achievement) to the use of e-assessment mode in business studies in Junior Secondary Schools in Rivers State.
iv. the relative contributions of students' readiness (learning readiness and achievement) to the use of e-assessment mode in business studies in Junior Secondary Schools in Rivers State.

Research Questions

The study addressed the following research questions:

i. What are the composite contributions of students' readiness factors (gender, age, self-efficacy and study habit) to the use of e-assessment mode in business studies in Junior Secondary Schools in Rivers State?
ii. What are the relative contributions of students' readiness factors (gender, age, self-efficacy and study habit) to the use of e-assessment mode in business studies in Junior Secondary Schools in Rivers State?

iii. What are the composite contributions of students' preference (learning readiness and achievement) to the use of e-assessment mode in business studies in Junior Secondary Schools in Rivers State?
iv. What are the relative contributions of students' readiness (learning readiness and achievement) to the use of e-assessment mode in business studies in Junior Secondary Schools in Rivers State?

Methodology

The study adopted the survey research type of the non-experimental design. Thus, the researcher did not manipulate any of the variables of concern but generated the information as they have occurred. Data was collected from the sample of junior secondary school students who offer business studies to ascertain their readiness and preference to the use of e-assessment mode to traditional assessment in business studies. The population included all Junior Secondary School students offering business studies in Port Harcourt, Rivers State. Simple random sampling technique was used to select ten (10) public junior secondary schools in Port Harcourt. From each of the selected schools, one arm of an intact class was selected using simple random sampling technique. In all, students participated. Three instruments were used for the study: Students' Readiness Questionnaire (SRQ) (r=0.84), Students' Preference Questionnaire (SPQ) (r=0.71) and Students Study Habit Questionnaire (SSHQ) (r=0.68).

Method of Data Collection and Analysis

The instruments were administered personally with the assistance and cooperation of the business studies teachers in the selected schools. The respondents were informed of the confidentiality of their responses and that there were no right or wrong answers. The researcher also stressed the point that these instruments have nothing to do with their examination. The data collected were analysed using multiple regression at 0.05 level of significance to determine the contributions of the predictor variables and the criterion variables in relation to the research questions.

Results and Discussion

Research Question One: What are the composite contributions of students' readiness (gender, age, self-efficacy and study habit) to the use of e-assessment mode in business studies in Junior Secondary Schools in Rivers State?

Table 1: Composite Contributions of Students' Readiness to the Use of e-assessment Mode

Multiple R = .297 R Square = .088
Adjusted R Square = .078 Standard Error = 4.105

Analysis of Variance					
Source of Variance	**SS**	**df**	**MS**	**F**	**Sig.**
Regression	561.660	4	140.415		
Residual	5813.014	345	16.849	8.334	0.000[b]
Total	6374.674	349			

The F-ratio in the ANOVA table as depicted in Table 1, tests whether the overall regression model is a good fit for the data generated which examines the degree to which the relationship between the dependent variable and the independent variables are linear. The table shows that the independent variables (age, gender, study habit and self-efficacy) statistically and significantly influenced the dependent variable (use of e-assessment mode in business studies) in Junior Secondary Schools. Table 1 shows that the regression models are good fits of the data [$F_{(4, 345)} = 8.334$, $p < .05$]. This means

that the relationship is linear and therefore all the four independent variables jointly influenced the dependent variable (use of e-assessment mode in business studies) in Junior Secondary Schools.

Table 1 also shows the Model Summary of the regression analysis in relation to learning of Business Studies as the criterion variable. Relationship exists between the independent variables (age, gender, study habits and self-efficacy) and dependent variable (use of e-assessment mode in business) R=0.30 , Adjusted R2=0.08; shows that all the independent or predictor variables in this study explained 8% of the variability of the dependent variable. This means that 8% of the total variance in the use of e-assessment in Business Studies is accounted for by students' variables (age, gender, study habit and self-efficacy).

Research Question Two: What are the relative contributions of students' readiness (gender, age, self-efficacy and study habit) to the use of e-assessment mode in business studies in Junior Secondary Schools in Rivers State?

Table 2: Relative contributions of predictor variables on criterion variable

Model		*Unstandardized Coefficients*		*Standard Coefficients*	*T*	*Sig.*
		B	Std. Error	Beta		
1	(Constant)	5.801	2.220		2.613	.009
	Gender	1.068	.485	.115	2.204	.028
	Age	-.279	.443	-.033	-.631	.529
	Self-efficacy	.088	.025	.190	3.587	.000
	Study habit	.066	.026	.136	2.595	.010

Table 2 shows the relative contributions of the predictor variables on the criterion variable. Out of the four variables, the three variables that contributed significantly to students' readiness to the of e-assessment mode in business studies are self-efficacy (β=0.190, t=3.587), study habit (β=0.136, t=2.595) and gender (β=0.115, t=2.204) respectively. While Age (β=-0.033, t(345)=-0.631) does not significantly influence students' readiness to the use of e-assessment mode in business studies.

Research Question Three: What are the composite contributions of students' preference (learning readiness and achievement) to the use of e-assessment mode in business studies in Junior Secondary Schools in Rivers State?

Table 3: Composite Contributions of Students' Preference to the use of e-assessment mode

Multiple R = .148 R Square = .022
Adjusted R Square = .016 Standard Error = 4.329

	Analysis of Variance				
Source of Variance	**SS**	**Df**	**MS**	**F**	**Sig.**
Regression	138.946	2	69.473		
Residual	6235.729	347	17.970	3.866	0.002[b]
Total	6374.674	349			

The F-ratio in the ANOVA table as depicted in Table 3. The multiple regression R=0.148 shows that the relationship between the predictor variables (learning readiness and achievement) and the criterion variable (the use of e-assessment mode in business studies) in Junior Secondary Schools is moderate and positive. The adj. R Square (R2 adj.) = 0.016 shows that the independent variable (learning readiness and achievement) accounted for 1.6% of variance in students' preference to the use of e-assessment mode in business studies in Junior Secondary Schools.

Table 3 further shows that the overall model of the predictor variables (learning readiness and achievement) significantly predicts students' preference to the use of e-assessment mode in business studies in Junior Secondary Schools $F(2, 347) = 3.866$, $p < 0.05$. This means that the relationship is linear and therefore significantly influences the dependent variable (students' preference to the use of e-assessment mode in business studies in Junior Secondary Schools. The Regression effect is statistically significant indicating that the prediction of the dependent variable is not by chance.

Research Question 4: What are the relative contributions of students' preference (learning readiness and achievement) to the use of e-assessment mode in business studies in Junior Secondary Schools in Rivers State?

Table 4: Relative contributions of predictor variables on criterion variable

Model		*Unstandardized Coefficients*		*Standard Coefficients*	*T*	*Sig.*
		B	Std. Error	Beta		
1	(Constant)	11.538	1.873		6.159	.000
	Learning readiness	-.006	.026	-.013	-.231	.817
	Achievement in Business studies	.162	.061	.152	2.642	.009

Table 4 shows the beta value of each of the predictor variables on students' preference to the use of e-assessment mode in business studies in Junior Secondary Schools. The result indicated that only achievement in business studies ($\beta = 0.152$; $t = 2.642$; $p < 0.05$) is a significant predictor of students' preference to the use of e-assessment mode in business studies in Junior Secondary Schools. The beta value indicates that, for every one unit change in the predicting factors, there is a corresponding increase of 0.152 in the use of e-assessment mode in business studies. While learning readiness ($\beta = -0.013$, $t = -0.231$; $p = 0.817$, $p > 0.05$) does not significantly predict students' preference to the use of e-assessment mode in business studies.

Discussion

The study shows that the independent variables (age, gender, study habit and self-efficacy) statistically and significantly influence the dependent variable (use of e-assessment mode in business studies) in Junior Secondary Schools. The result shows that relationship exists between the independent variables (age, gender, study habits and self-efficacy) and dependent variable (use of e-assessment mode in business studies). This means that when taken together, the variables of age, gender, study habits and self-efficacy predict students' readiness to the use of e-assessment mode in business studies. This result is in consonance with the findings of Liu, Hsieh, Cho & Schallert (2006) finding from a study that implemented a computer-enhanced problem-based learning environment to investigate the relationships among students' self-efficacy towards science and achievement. They found self-efficacy to a statistically significant predictor of achievement as cited by Arizpe, Dwyers and Stevens (2006). On gender issue, the study agreed with that of Rodney, Raymond, Lance and Tracey (2008) findings that emanated from some investigations produce scientific evidence that females and males are equally intellectually capable. Also, the study is in line with Ayodele (2006) who found significant correlation between study habits and academic achievement.

The result is in consonance with researchers views such as Algahtani (2011) and Naidu (2006) who postulated that e-assessment can be delivered through the web, where students use the Internet to access the assessment tasks (online e-assessment). Furthermore, the researchers asserted that the

assessment tasks/tests are downloaded onto the students' computers in the appropriate assessment centres at the correct date and time and released when the student arrives for the assessment (offline e-assessment). The result of the study is in agreement with Alkhateeb, Almaghayreh, Aljawarneh, Muhsin & Nsour (2010) who asserted that typical assessment tasks supported by the Moodle LMS include calculation questions, calculated multi-choice questions, calculated simple questions, cloze questions, essay questions, matching questions, multiple-choice questions, numerical questions, random short-answer matching questions, short-answer questions, true/false questions, and description questions. Osuji (2012) reiterated that the questions supported include Likert-type questions, matching (graphical) questions, matching (simple) questions, multiple-choice questions, open-ended questions, ordering questions, and true/false questions.

E-assessment is supported by Craven (2009); who emphasizes that in an "objective or convergent assessment" where the marking scheme is based on only one correct answer, automatic marking is very effective. On the other hand, in "subjective or divergent assessment" where different answers might be acceptable, automatic marking can be very difficult. In terms of subjective assessment, technologies are built into e-assessments in order to ease the assessment delivery process, but that process is not automated.

Conclusion

This study concluded that e-assessment has the potential to support and even improve student learning, provided that the e-assessment tasks are properly designed. It was also evident in the review that high order assessment tasks can also be assessed through e-assessment. Based on the principles of e-assessment, it is evident that for assessment to be credible, teachers should make a concerted effort to create assessment that is authentic, consistent, transparent and practicable. Credible assessment will enhance students' learning because it encourages students to apply a deep learning approach. E-assessment might currently be more suitable as opposed to traditional assessment since it has the potential to minimize stress among students, improve decision making among administrators, and reduce costs and time.

Recommendations

The following recommendations were made:

i. The state and Federal Governments should specially fund the establishment of computer-based assessment centres in public secondary schools and private secondary schools should be assisted in this regard through the Education Trust Fund.
ii. Adequate resources and enabling infrastructure should be made available in schools to facilitate the use of ICTs in internal educational assessment programmes.
iii. Governments should make power supply to be available in all secondary schools.
iv. E-assessment should be made compulsory right from primary schools to all other levels of education.
v. There should be ICT training for both students and teachers in secondary schools.

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